

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: NHS00-0002-00(861) Camden **OFFICE:** Engineering Services
P.I. No.: 0002861
SR 40 Widening and Reconstruction **DATE:** September 1, 2009

FROM: Ronald E. Wishon, Project Review Engineer *REW*

TO: Bradford W. Saxon, PE, District Pre-Construction Engineer, Jesup


SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held June 9-12, 2009. Responses were received on August 28, 2009. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
A-2	Use standard width ROW with slope easement	\$3,400,000	No	Implementation of other recommendations (B-1.2, B-3, B-9, B-13) will reduce the required ROW and render A-2 obsolete.
B-1.1	Use 11 ft through lanes instead of 12 ft	\$872,000	No	This will not be done since B-1.2 will be done.
B-1.2	Use 11 ft inside lanes and 12 ft outside lanes	\$436,000	Yes	This will be done.
B-3	Eliminate the 6 ft widening for the future 20 ft raised median	\$1,308,000	Yes	This will be done. A future 20 ft raised median is not warranted and the project will no longer be designed to accommodate the raised median.
B-4.1	Move the bicycle lanes behind the curb and incorporate with sidewalk as a multi-use trail	\$155,000	No	Multi-use paths pose a problem at intersections and side roads and in an urbanized area with numerous driveways. Many cyclists prefer the roadway bike lanes.
B-4.2	Eliminate bicycle lanes and widen sidewalk to 10 ft on one side of the street for use as a multi-use trail	\$255,000	No	There are commercial and residential areas on both sides of the roadway; therefore sidewalk should remain on both sides of the roadway.

B-7	Use 16 ft median in lieu of 20 ft	\$872,000	No	Since B-3 will be done, this no longer applies.
B-9	Reduce the 14 ft center turn lane to a 12 ft center turn lane	\$436,000	Yes	This will be done. This will require a design variance.
B-11.1	Realign Grove Blvd. to match concept report and close E. William Ave. with a cul-de-sac	(\$-980,000) Cost increase	Yes, with modifications	North and South Grove Boulevard will be realigned to intersect. This realignment will keep the angle of the road at 47°. As a result, the design will require a design exception. Increasing the angle to 90° would require an unwarranted increase in ROW takes, construction costs and environmental impacts. See attached layout for the proposed redesign.
B-11.2	Close E. William Ave. with a cul-de-sac	(\$-380,000) Cost increase	Yes	This will be done.
B-13	Reduce urban shoulders from 16 ft to 12 ft	\$1,600,000	Yes	This will be done. A design variance will be required.
B-16	Construct 20 ft raised median now	\$177,000	No	A future 20 ft raised median is not warranted and the project will no longer be designed to accommodate the raised median.
D-2	Utilize existing water main as much as possible	Design Suggestion	Yes	This will be done.
E-1	Recalculate earthwork estimate and quantities	Design Suggestion	Yes	This will be done.
I-3	Shift all widening to one side of SR 40	Design Suggestion	No	The current alignment was shifted 6 ½ ft to the left from the original alignment. Any further shift would increase the impact on the businesses on the left.
B-17	Shorten project limits	Design Suggestion	No	Due to current SR 40 conditions, it was necessary to extend the project limits to correct the tie-in conditions and to bring SR 40 up to current GDOT standards.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved:  Date: 9/3/09
Gerald M. Ross, PE, Chief Engineer

REW/LLM

Attachments

c: Genetha Rice Singleton
Brad Saxon/Dennis Odom/Cassius Edwards/Rebecca Thigpen
Billy Smith
Sheree Smart
Will Murphy/Brian Czech
Nabil Raad
Lisa Myers
Matt Sanders

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE NHS00-0002-00(861) Camden County **OFFICE** Jesup, Design
Widen S.R. 40 From West of Grove Blvd. to East of Truss Plant Rd.
P. I. No. 0002861 **DATE** 8/28/2009

FROM Bradford W. Saxon, P.E., District Pre-Construction Engineer, Jesup (RWT)

TO Brian Summers, P.E., State Project Review Engineer
Attn: Lisa Myers

SUBJECT Value Engineering Study Responses

Reference is made to the recommendations that were contained in the Value Engineering Study Final Report dated June 26, 2009 for the above referenced project. Our responses are as follows:

Recommendations:

1. Idea A-2; Use standard width R/W with slope easements

The current plans provide for right of way acquisition for the full width required up to the limits of grading with widths varying from 140 up to 210 ft.

This recommendation combines several ideas developed during the creative phase and provides a standard width R/W of 100 ft with slope easement acquisition for the remaining required right of way. The existing right of way width is 100 ft and would accommodate the 76 ft required roadway width along with 2-12 ft shoulders.

The total potential savings if accepted is \$3,400,000.

➤ **VE Recommendation A-2 is not accepted.**

Reducing lane, center turn, shoulder widths and removing 6' of lane width for future raised median (Idea B-3) would reign in the right-of-way and reduce cost significantly in this urbanized area. Plus, slope easements will be considered as an option for any work outside of the right-of-way.

2. Idea B1.1; Use 11 foot lanes

The current 12 foot standard lane will be reduced to 11 ft providing a similar project function while narrowing the roadway template and saving construction and right of way costs.

The total potential savings if accepted is \$872,000.

- **VE Recommendation B1.1 is not accepted.**
AASHTO and GDOT "Design Policy Manual" recommends 12-ft lanes due to safety, comfort of driving and desirable clearances between vehicles where potential right of way impacts and environmental constraints are not a factor. AASHTO guidance also indicates that 11-ft lanes are acceptable in urban areas where pedestrian crossings, right of way or existing development become stringent controls. The roadway typical section can be modified to reflect 11-ft travel lanes in the urban 5-lane section. The use of 11-ft lane widths will require a design variance approval. Plus, the 24HR truck traffic is at 21% and would require the outside lanes to be 12 foot for truck traffic.

1. Idea B1.2; Use 11 foot inside lanes only

The current 12 foot standard lane will be reduced to 11 ft for the inside lane while maintaining the 12 foot outside lane width for trucks. Similar to the previous recommendation this will provide the same project function while narrowing the roadway template and saving construction and right of way costs, however it will better accommodate trucks in the right lane.

The total potential savings if accepted is \$436,000.

- **VE Recommendation B1.2 is accepted.**
Refer to VE Recommendation B1.1 for response.

2. Idea B-3; Eliminate the widening for the future 20 ft raised median.

The current plans provide for additional widening to provide space for a future 20 ft median.

This recommendation would eliminate the additional 6 ft of widening required for a potential future 20 ft raised median. The 5-lane section is adequate for the projected traffic volumes. From the interstate, travelling west to Kingsland, the SR 40 would transition from a section with a raised median to a flush 14 ft center turn lane to a 4 lane section with no median. A future 20 ft raised median is not warranted. Also, there is a proposed by-pass project that is anticipated to reduce the projected volumes on SR 40 when constructed. By eliminating the additional space and pavement construction for a future 20 ft median, there will be a reduction in material costs and R/W taking.

The total potential savings if accepted is \$3,400,000.

- **VE Recommendation B-3 is accepted.**
Removing 6' of width for future raised median would reign in the right-of-way and reduce material cost significantly in this urbanized area. Also, there is a proposed by-pass project that is anticipated to reduce the projected traffic volumes on SR 40 when constructed and the 20' raised median would not be needed. Further widening through Kingsland will not occur.

3. Idea B4.1; Move the bike lanes behind the curb and combine with sidewalk.

The current plans provide for 4 foot wide bike lanes within the roadway on each side.

This recommendation would remove the bike lane from the travelled way and construct a 10 ft wide sidewalk that can be used as a multi-use trail eliminating the need for dedicated bike lanes. Shifting the bike lanes out of the roadway will create a safer place for the cyclist and eliminate 8 ft of full depth pavement construction. Safe and protected crossings will be provided at the signalized intersections at Grove Blvd and Truss Plant Road.

The total potential savings if accepted is \$155,000.

➤ **VE Recommendation B4.1 is not accepted.**

According to AASHTO Guide for the Development of Bicycle Facilities “sidewalks generally are not acceptable for bicycling”. They are “inappropriate and inconvenient because street crossing by bicyclist may be required when the route changes character”. Plus, “wrong way bicycle travel with higher potential for crashes may occur”. “Generally, shared use paths should be used to serve corridors not served by streets and highways, permitting such facilities to be constructed away from the influence of parallel streets”. Also, other users such as joggers, persons in wheelchairs, dog walkers & people pushing baby carriages will use the shared use path and their safety should be taken into consideration. “Shared use paths are facilities on exclusive right of ways and with minimal cross flow by motor vehicles”. Shared use paths pose a problem at intersections and side roads. At intersections and side roads, “motorists entering or crossing the roadway often will not notice bicyclists approaching from their right and motorists turning to exit the roadway may fail to notice the bicyclist as well”. “Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path crossing”. Many bicyclists prefer the roadway instead of the shared use paths because they have found the roadway to be more convenient, better maintained, smoother ride and safer. Therefore, shared use paths should not be used at this location.

4. Idea B4.2; Shift the sidewalk / trail to one side only.

The current plans provide for 4 ft wide bike lanes and 5 ft wide sidewalks along both sides of SR 40.

This recommendation is similar to the previous one except that it provides a wider sidewalk / multi-use trail on only one side of the road. Additional savings include reduced construction costs.

The total potential savings if accepted is \$255,000.

➤ **VE Recommendation B4.2 is not accepted.**

Sidewalks used for pedestrian access to schools, parks, shopping areas and transit stops and placed along all streets in commercial areas should be provided along both sides of urban streets. Furthermore, sidewalks shall be provided wherever curb and gutter is utilized along the outside edges of pavement of the mainline roadway urban sections. For other reasons why this recommendation is not acceptable refer to VE Recommendation B4.1 response.

5. Idea B-7; Use 16 ft median instead of 20 ft

The current plans provide for a future 20 ft median.

This recommendation will reduce the median width to 16 ft providing adequate space for a left turn lane with a 4 ft offset / raised median separation at the openings.

The total potential savings if accepted is \$872,000.

- **VE Recommendation B-7 is not accepted.**
Refer to VE Recommendation B-3 for response.

6. Idea B-9; Use 12 ft center turn lane instead of 14 ft.

The current plans provide for a 14ft center turn lane.

This recommendation will reduce the width of the center turn lane to 12 ft. The 12 ft turn lane will provide the same function with reduced construction and right of way costs.

The total potential savings if accepted is \$436,000.

- **VE Recommendation B-9 is accepted.**
AASHTO requires 14' two-way left turn lanes for urbanized areas to provide access to closely spaced, low volume commercial driveways. Also, to provide reduced crash frequency, reduced travel time and improved capacity. The roadway typical section can be modified to reflect 12-ft two-way left turn lanes in the urban 5-lane section. The use of 12-ft two way left turn lane will require a design variance approval. This reduction will also reduce the right of way purchased and reduce construction material costs.

7. Idea B11.1; Realign the Grove Blvd intersection and eliminate the right in / right out.

The current alignment at this intersection does not adequately address the sharp skew angle, the side street tie-in and the overall poor existing alignment.

This recommendation is to realign the Grove Blvd intersection to provide an improved and safer layout. This will also eliminate the right in / right out condition at E. William Avenue. This recommendation will increase the project costs however it is required to provide a more efficient intersection layout.

The total potential cost increase if accepted is \$980,000.

- **VE Recommendation B11.1 is accepted with modification.**
The District Office recommends offsetting & realigning North and South Grove Boulevard to intersect. This realignment would keep the angle of the road at 47 degrees that both roadways are currently. As a result, the design would require a design exception. Increasing the angle to 90 degrees will require an unwarranted increase in right of way takes, construction costs and environmental impacts. The increased angle would impact two businesses, on one side a newspaper business and the other side a gas station. The side with the gas station may affect the storage tanks which would drive up

construction costs even more. Plus, the intersection will be signalized, which will make turning for traffic safer. Also, East Williams St. would be cul-de-sac prohibiting turning access from South Grove Blvd. & S.R. 40 onto East Williams Street. The revised layout provides for a safer layout. The revised design will also require the concept to be revised. Furthermore, realigning North & South Grove Blvd. even more would adversely affect both businesses depending on which side you realign to and result in damages being paid to the owner(s). (See attached layout.)

8. Idea B11.2; Eliminate the right in / right out.

This recommendation is only to eliminate the right in / right out condition at the Grove Blvd / E. William Avenue intersection. It will increase project costs but provide a safer alignment. Local access to SR 40 is available about 1,500 feet further west.

The total potential cost increase if accepted is \$380,000.

➤ **VE Recommendation B11.2 is accepted.**

The right in and right out will be eliminated and East Williams Street will be cul-de-sac. This would allow local access to SR 40 available about 1,500 feet further west.

9. Idea B-13; Use 12 ft shoulder instead of 16 ft.

The original concept and the current plans were developed using a 16 ft urban shoulder.

This recommendation will reduce the shoulder width to 12 ft providing adequate space for a sidewalk and utility zone while reducing the right of way impacts.

The total potential savings if accepted is \$1,600,000.

➤ **VE Recommendation B-13 is accepted.**

Reducing the AASHTO required 16' shoulder to 12' would lessen the impacts to businesses, reduce right of way and construction costs. The roadway typical section can be modified to reflect 12-ft shoulder in the urban 5-lane section. The use of 12-ft shoulder will require a design variance approval.

10. Idea B-6; Construct the 20 ft raised median.

The current plans provide for a flush 14 ft wide, center turn lane with the potential of a future 20 ft median.

This recommendation proposes to construct the full 20 ft raised median as part of this project rather than waiting until the traffic conditions warrant. While the actual construction costs will be slightly increased, the overall project costs will be reduced if the 20 ft median will be constructed as part of a standalone future project. Additionally, there will be much less disruption and local opposition if it will be constructed concurrently with this project.

The total potential savings if accepted is \$217,000.

- **VE Recommendation B-6 is not accepted.**
Refer to VE recommendation B-3 for response.

Design Considerations:

1. Idea B-17; Shorten the project limits.

The current plans provide for widening and improvements beyond the transitions needed for a reasonable tie-in. Even though both project termini are on curves and transitioning roadways, every effort should be made to minimize the work in keeping with the project's intent and not addressing current undesirable or substandard conditions, especially if this will require further encroachment onto adjacent properties; the fire station on the west end and the raised median, gas stations and interchange ramps on the east end. This design consideration will reduce the construction costs and minimize coordination concerns by not extending the project limits beyond the required limits.

- **VE Design Considerations B-17 is not accepted.**
Due to the current S.R. 40 conditions, it was necessary to extend the project limits to correct tie-in conditions and to bring S.R. 40 up to GDOT guidelines and standards. Reducing lane and two-way left turn widths, reducing right of way, eliminating 6' for future 20' raised median and reducing urban shoulder will reduce impacts to the fire station and adjacent properties.

2. Idea D-2; Re-use the existing water line.

The cost estimate for the water line work is listed at \$440,000 which would include a completely new waterline for the entire length of the project. A study and determination should be made to use the existing water line assuming it is in reasonable condition and only reset / relocate the valves and hydrants. This will significantly reduce the cost estimate for this work. Additionally, this work should be reimbursed to GDOT by the owner, the City of Kingsland unless otherwise agreed.

- **VE Design Considerations D-2 is accepted.**
With the reduction of lanes, shoulder, right of way the existing water line will not need to be relocated or touched, saving on utility costs. If these measures are not enough, other adjustments can be made to use and maintain the existing water line in its present location.

3. Idea E-1; Recalculate the earthwork quantities and estimate.

The current plans and preliminary estimate seem excessive in the amount and cost for all earthwork items. This is only a 1.2 mile long project along flat and open terrain. Earthwork does not seem to be a significant project element.

- **VE Design Considerations is accepted.**
The current project is 1.43 miles long and reflects the full width typical section cross-sections. Reduction of right of way, along with other design elements will reduce earthwork quantities.

4. Idea I-3; Eliminate roadway widening on both sides of the existing road.

The current plans provide for widening and full depth pavement construction on both sides of the existing road to develop the required ultimate roadway width. Shifting the alignment to one side to eliminate the full depth construction on both sides will allow the construction staging and maintenance of traffic to operate at a safer and more efficient level. While Right of Way impacts should be similar from an affected area standpoint, the number of parcels should be reduced. The affected businesses appear to be far enough from the existing road to facilitate this shift however a final determination will need to be made.

➤ **VE Design Considerations is not accepted.**

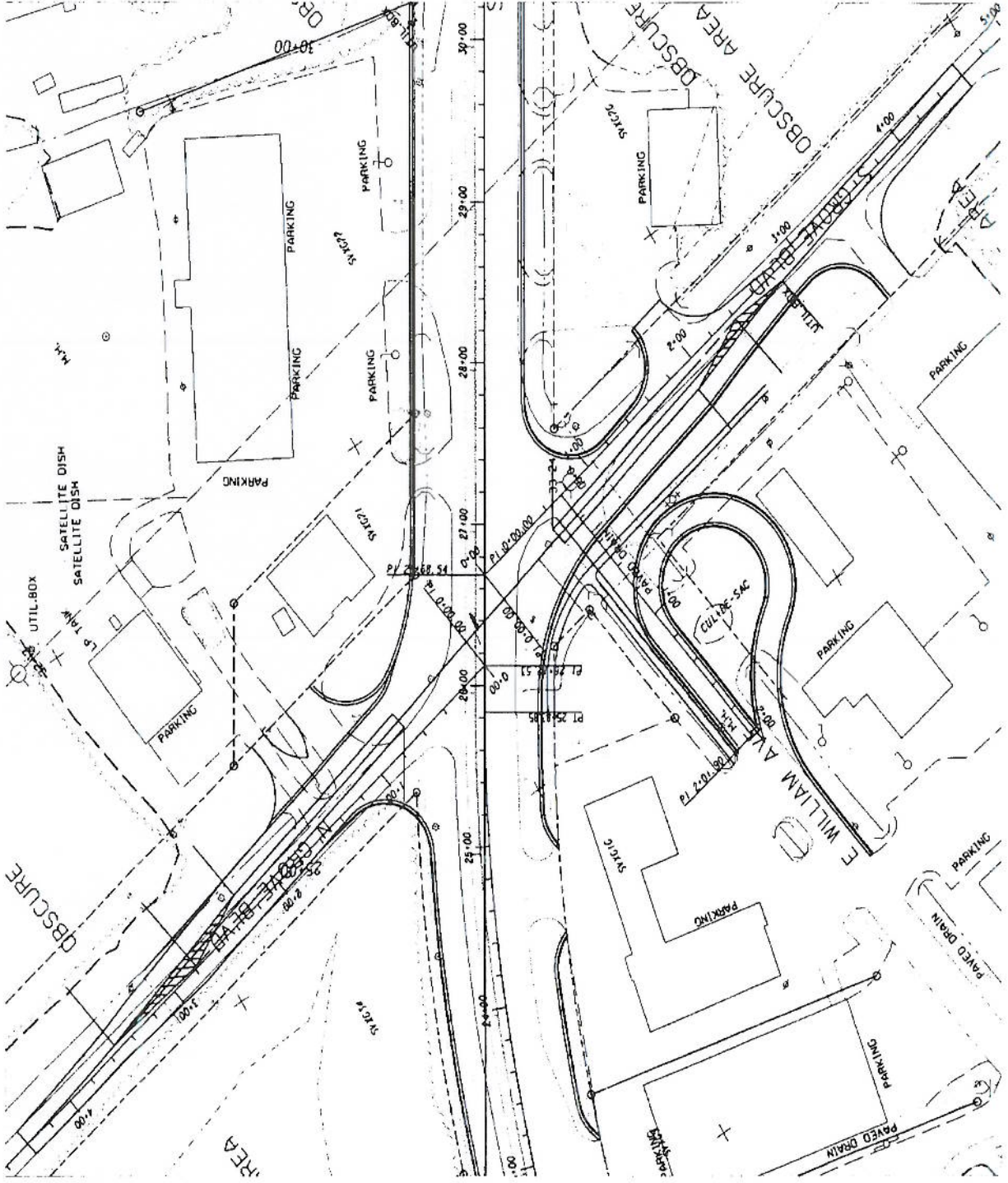
The current alignment was shifted 6.5' to the left. Shifting the alignment anymore would impact businesses more on the left side. The reduction of lanes, shoulders and right of way should eliminate the need for right of way purchase on the right side like it was originally intended to do. This would reduce the number of parcels, construction and right of way costs. Plus, the addition of bike lanes would still require widening on both sides and should keep the proposed design within the right of way on the right.

If there are any further questions or if any additional information is needed, please contact the Project Manager, Cassius O. Edwards at (912) 427-5717 or e-mail at cedwards@dot.ga.gov.

BWS:ADO:coe

cc:

Lisa Myers
General File Unit, Atlanta
Jesup Files
Project Files



DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
5 LANE WIDENING OF SR 40 FM WEST OF CS 481 / GROVE BLVD TO EAST OF PR 718 / TRUSS PLANT ROAD
NHS00-0002-001(861)
CAMDEN COUNTY
FEDERAL AID PROJECT

LOCATION SKETCH

DESIGN DATA:
TRAFFIC ADJ: 16250 (2015)
TRAFFIC ADJ: 24150 (2035)
TRAFFIC DIV: 2415
DIRECTIONAL DIV: 51%
% TRUCKS: 9%
24 HR TRUCKS: 7%
SPEED DESIGN: 45 & 35 MPH

LOCATION & DESIGN
APPROVAL DATE: January 18, 2008

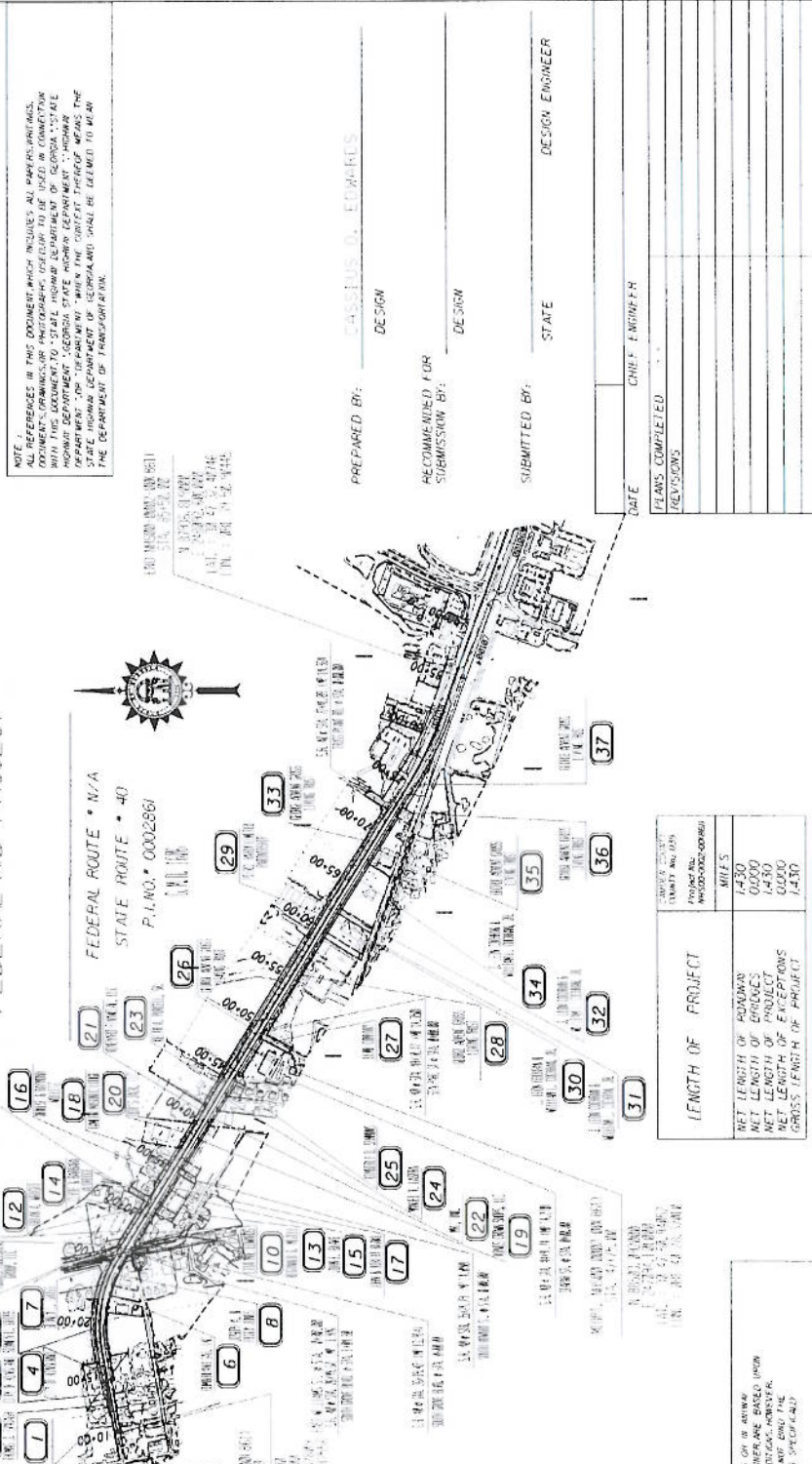
FUNCTIONAL CLASS:
PRINCIPLE ARTERIAL / URBAN

THIS PROJECT IS LOCATED IN
CAMDEN COUNTY AND IS
100% IN CONG. DIST. NO. 4

PROJECT DESIGNATION: EXEMPT
(EX-100) IN FIVE-MINUTE STUDY.

THIS PROJECT WAS PREPARED
BY THE DESIGNER AND IS
COORDINATE WITH THE ROAD
AND TRUCK ZONE AND THE NORTH
AMERICAN VERTICAL CURVE TABLE
OF 1988.

THE DATA HEREIN WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANY
INDICATED THEREIN, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON
FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER,
THE ENGINEER HAS NOT CONDUCTED A FIELD SURVEY OF THE PROJECT AREA AND HAS NOT
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LENGTH OF PROJECT	NET LENGTH OF ROADWAY	NET LENGTH OF BRIDGES	NET LENGTH OF TUNNELS	NET LENGTH OF EXEMPTIONS	GROSS LENGTH OF PROJECT
1.430	0.000	0.000	0.000	0.000	1.430

NOTE: REFERENCES IN THIS DOCUMENT WHICH INCLUDES ALL PARALLEL LINES, DRAWINGS, AND PHOTOGRAPHS, SHALL BE USED IN CONNECTION WITH THIS DOCUMENT. THE GEORGIA DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY DEPARTMENT, GEORGIA STATE HIGHWAY DEPARTMENT, AND THE STATE HIGHWAY DEPARTMENT OF GEORGIA, SHALL BE HELD TO BE THE DEPARTMENT OF TRANSPORTATION.

PREPARED BY: CASSIUS D. EDWARDS
DESIGN

RECOMMENDED FOR SUBMISSION BY: DESIGN

SUBMITTED BY: STATE
DESIGN ENGINEER

DATE: _____

CHIEF ENGINEER

PLANS COMPLETED: _____

REVISIONS:

PRECONSTRUCTION STATUS REPORT FOR PI:0007414,0002861

SR 40 FM W OF CS 481/GROVE BLVD TO E OF PR 718/TRUSS PLANT

MGMT LET DATE : 03/15/2012
 MGMT ROW DATE : 09/15/2010
 BASELINE LET DATE: 03/13/2012
 SCHED LET DATE : 5/8/2012
 WHO LETS?: GDOT Let
 LET WITH :

PROJ ID : 0002861
 COUNTY : Camden
 LENGTH (MI) : 1.23
 PROJ NO.: NHS00-0002-00(861)
 PROJ MGR: Odum, Dennis
 AOHD Initials: 3RT/CE
 OFFICE : District 5
 CONSULTANT: No Consultant, GDOT In-House Design
 SPONSOR : GDOT
 DESIGN FIRM:

LATE START	LATE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%	PROGRAMMED FUNDS						STIP AMOUNTS		
		Concept Development Concept Meeting PM Submit Concept Report Receive Preconstruction Concept Approval Management Concept Approval Complete Revised or Re-validate Approved Concept Value Engineering Study Environmental Approval Mapping Field Surveys/SDE Preliminary Plans Underground Storage Tanks 404 Permit Obtainment FFPR Inspection R/W Plans Preparation R/W Plans Final Approval L & D Approval R/W Acquisition Stake R/W Soil Survey Final Design FFPR Inspection Submit FFPR Responses (OES)	5/25/2006 7/18/2007 10/17/2007 10/26/2007 1/10/2008 7/18/2008 2/4/2008 7/20/2006 7/7/2008 1/13/2009 <											

Prel. Parcel CT: 19
 Under Review:
 Released:
 Total Parcel in ROW System:
 Options - Pending:
 Condemnations- Pending:
 Cond. Filed:
 Relocations:
 Acquired:
 Acquired by:
 Acquisition MGR:
 R/W Cert Date:
 DEEDS CT: